EVAL6227QR

Demonstration board mounting the L6227Q dual full-bridge driver

Data brief

Features

- Operating supply voltage from 8 to 52 V
- 2.8 A output peak current (1.4 A DC)
- $R_{DS(on)}$ 0.73 Ω typ. value @ T_J = 25 °C
- Operating frequency up to 100 kHz
- Non dissipative overcurrent protection
- Dual independent constant t_{OFF} PWM current controllers
- Slow decay synchronous rectification
- Cross conduction protection
- Thermal shutdown
- Undervoltage lockout
- Integrated fast free wheeling diodes

Description

The L6227Q is a DMOS dual full-bridge designed for motor control applications, realized in BCD multipower technology.

The L6227Q features thermal shutdown and a non-dissipative overcurrent protection on the high-side power MOSFETs plus a diagnostic output that can be easily used to implement the overcurrent protection.

The device also includes two independent constant off-time PWM current controllers which perform the chopping regulation.

1 Board description

Table 1. EVAL6227QR electrical specifications (recommended values)

Parameter	Value
Supply voltage range (VS)	8 to 52 Vdc
Output current rating (OUTx)	up to 1.4 $A_{r.m.s.}$
Switching frequency	up to 100 kHz
Input and enable voltage range	0 to + 5 V
Voltage reference range (REFA, REFB)	0 to + 5 V
L6227Q thermal resistance junction-to-ambient	42 °C/W

Figure 1. EVAL6227QR demonstration board description

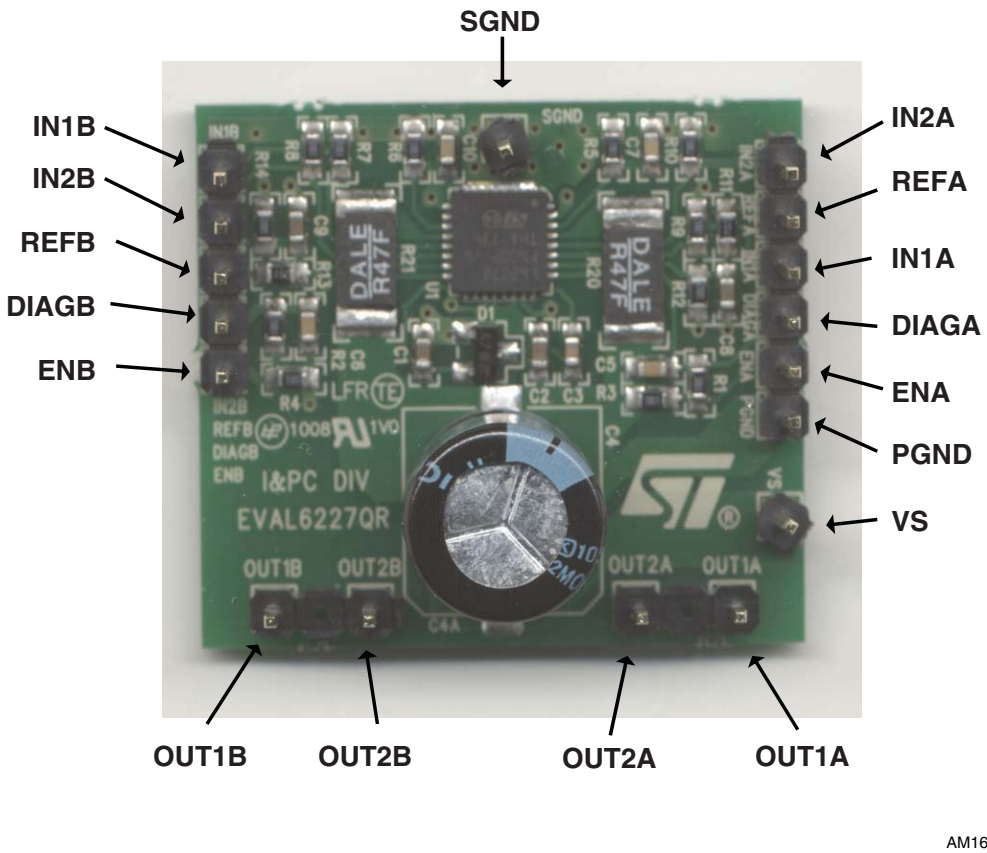


Table 2. EVAL6227QR pin connections

Name	Type	Function
VS	Power supply	Bridge A and bridge B power supply
PGND	Ground	Power ground terminal
IN1A	Logic input	Bridge A logic input 1
IN2A	Logic input	Bridge A logic input 2
ENA	Logic input	Bridge A enable (active high). When low, the power DMOSs of bridge A are switched OFF.
IN1B	Logic input	Bridge B logic input 1
IN2B	Logic input	Bridge B logic input 2
ENB	Logic input	Bridge B enable (active high). When low, the power DMOSs of bridge B are switched OFF.
DIAGA	Open drain output	Bridge A diagnostic pin. When low, an overcurrent or overtemperature event of bridge A is signaled.
DIAGB	Open drain output	Bridge B diagnostic pin. When low, an overcurrent or overtemperature event of bridge B is signaled.
SGND	Ground	Signal ground terminal
REFA	Analog input	Bridge A current controller reference voltage
REFB	Analog input	Bridge B current controller reference voltage
OUT1A	Power output	Bridge A output 1
OUT2A	Power output	Bridge A output 2
OUT1B	Power output	Bridge B output 1
OUT2B	Power output	Bridge B output 2

Figure 2. EVAL6227QR demonstration board schematic

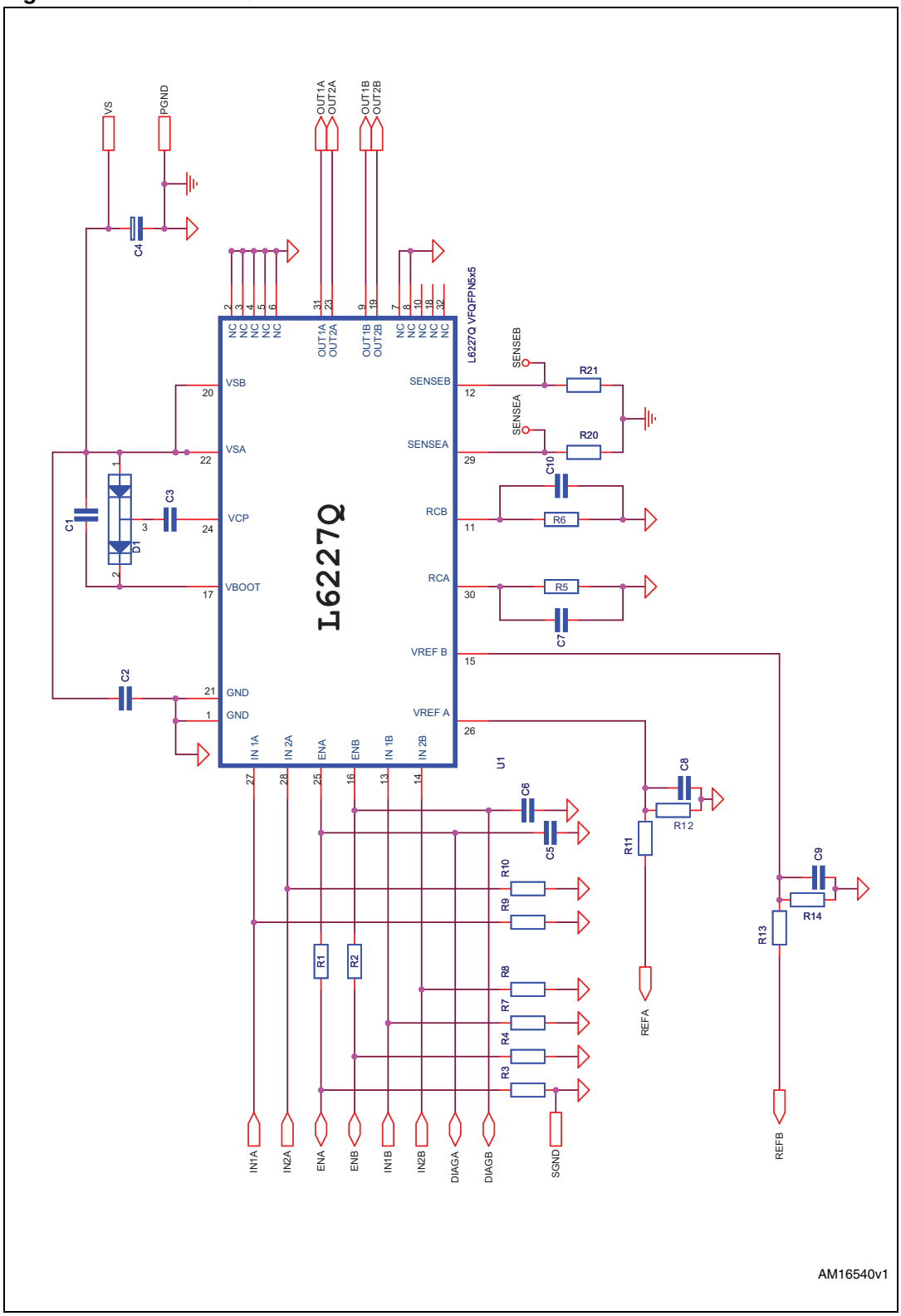


Table 3. EVAL6227QR part list

Part reference	Part value	Part description
C1	220 nF/25 V	Capacitor
C2	220 nF/63 V	Capacitor
C3	10 nF/25 V	Capacitor
C4	100 µF/63 V	Capacitor
C5, C6	5.6 nF	Capacitor
C7, C10	820 pF	Capacitor
C8, C9	220 nF	Capacitor
D1	BAT46SW	Diode
R1, R2, R3, R4, R7, R8, R9, R10	100 kΩ, 5%, 0.25 W	Resistor
R5, R6	100 kΩ, 1%, 0.25 W	Resistor
R11, R13	20 kΩ, 5 %, 0.25 W	Resistor
R12, R14	2 kΩ, 5 %, 0.25 W	Resistor
R20, R21	0.4 Ω, 1 W	Resistor
U1	L6227Q	Dual full-bridge in VFQFPN5x5

Figure 3. Component placement

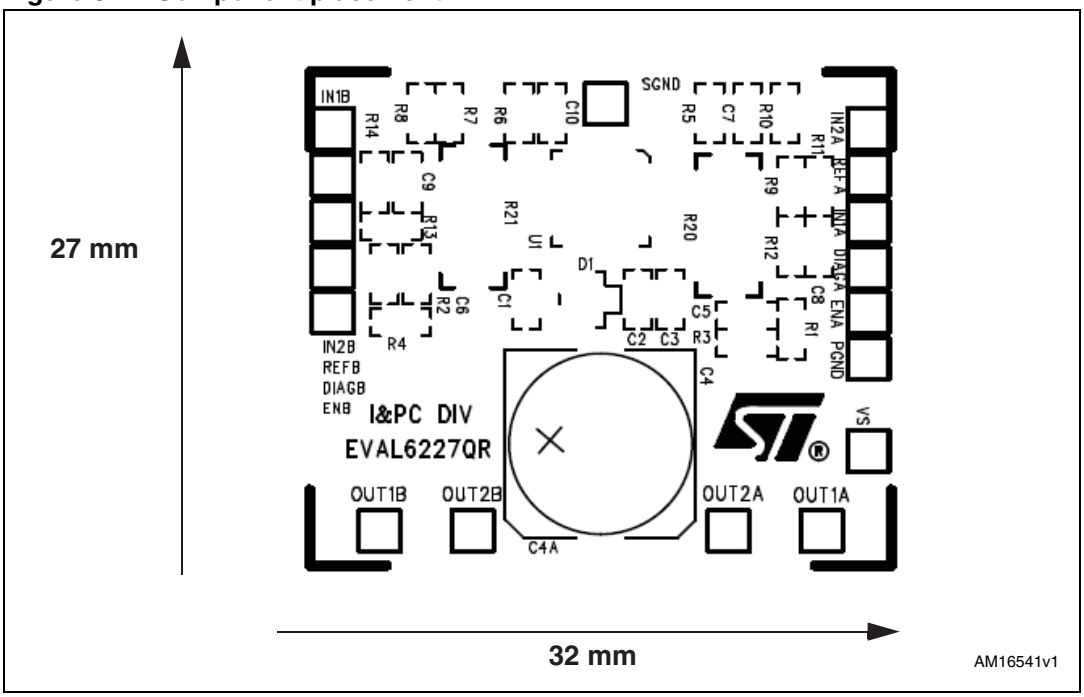


Figure 4. Top layer layout

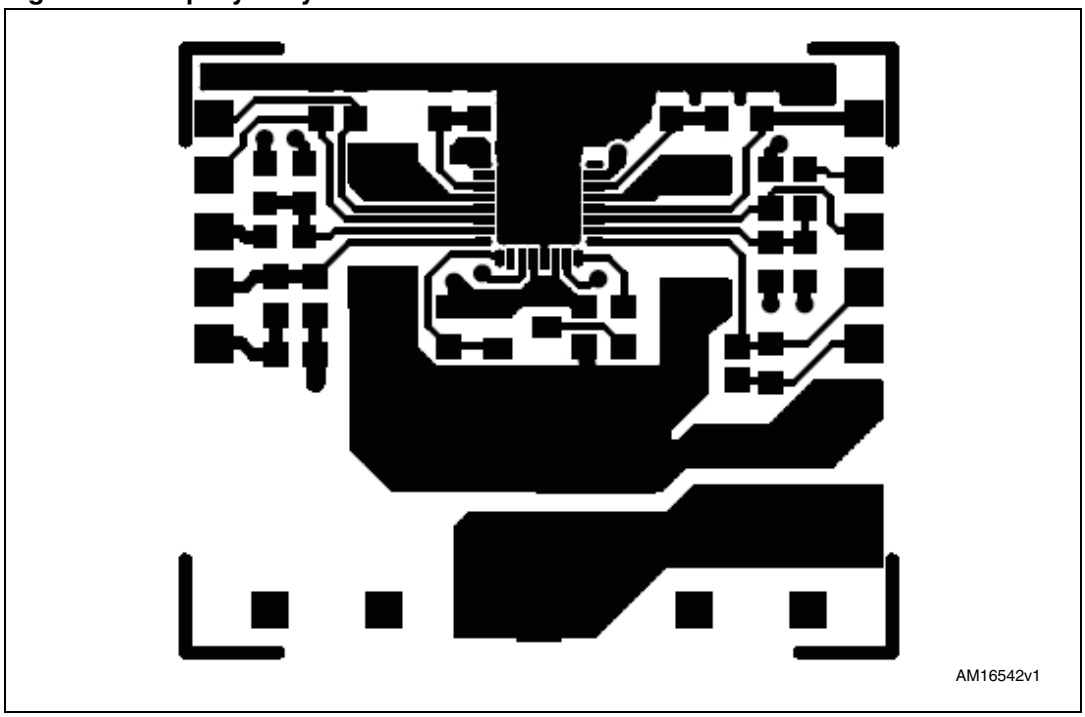
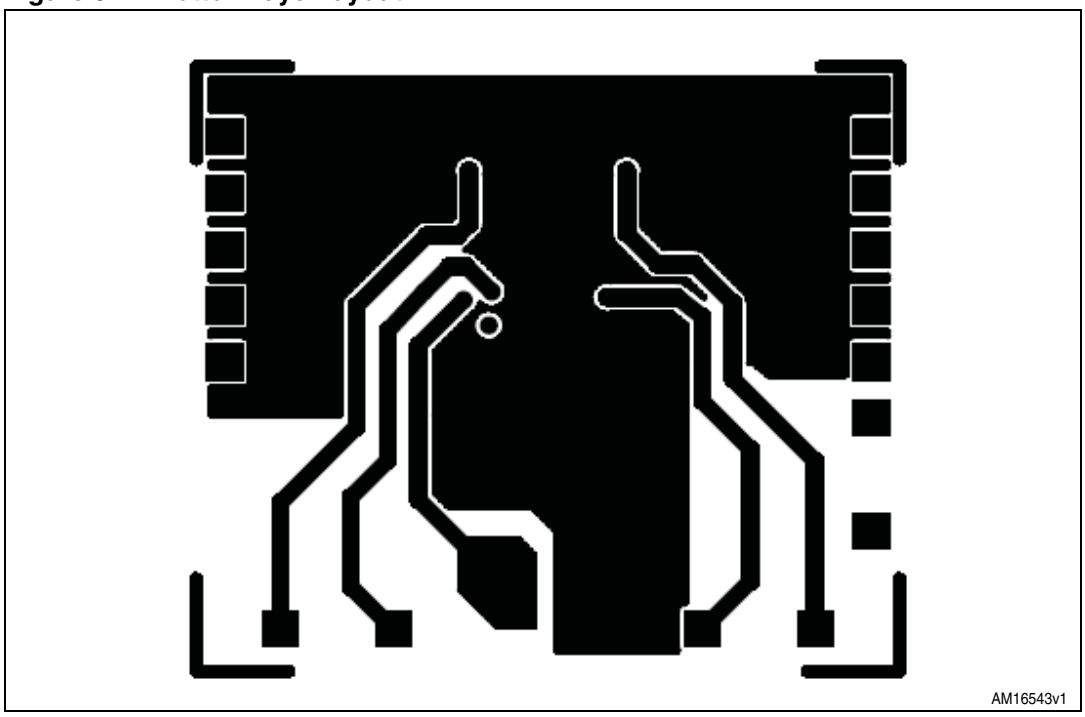


Figure 5. Bottom layer layout



2 Revision history

Table 4. Document revision history

Date	Revision	Changes
09-Jan-2013	1	Initial release.